REMARKS/ARGUMENTS

Claims 1-22 as amended through the above amendments are currently pending in the present patent application.

In an Office Action mailed on March 7, 2006, the Examiner objected to claims 1-14 and 18-22 for several informalities. These claims were amended in response to the Examiner's comments. None of these amendments narrows the scopes of any of these claims. The Examiner also rejected claims 1-17 as being anticipated by U.S. Patent No. 6,416,410 B1 to Abou-Samra *et al.* ("Abou-Samra") and rejected claims 18-22 as being unpatentable over Abou-Samra in view of U.S. Patent No. 6,684,358 to Rajski *et al.* ("Rajski").

Before addressing the Examiner's rejections of the claims, a disclosed embodiment of the invention will first be discussed in comparison to the applied Abou-Samra reference in order to help the Examiner appreciate certain distinctions between the pending claims and the subject matter of the applied reference. Specific distinctions between the pending claims and the applied reference will be discussed after the discussion of the disclosed embodiment and the applied reference. This discussion of the differences between a disclosed embodiment and the applied reference does not define the scope or interpretation of any of the claims.

Figures 3 and 4 illustrate an example of encoding data according to an embodiment of the present invention. Figure 3a illustrate a word having a format for non-compressible data, with the most significant bit being set to a logic "1" and the remaining bits being the non-compressible data. *See* ¶32. Figure 3b and illustrates a word having a format for compressible data having the most significant bit set to logic "0" and the next five bits indicating the total number of subsequent words that, together with the present word, encode the sequence of repetitive data. *See* ¶33. The remaining bits indicate the number of times the words indicated by the five bits just discussed are repeated. *Id.* The term "word" is thus used as a group of bits including both non-compressible/compressible information plus data (for non-compressible data) or information regarding other words that encode a sequence of repetitive data and the number of times the sequence repeats (for compressible data). A word thus includes a compression code plus either a non-compressed

datum (for non-compressible format words), a repeated datum (for compressible format words), or information about subsequent words that encode the pattern being encoded. A sequence can thus be encoded through multiple compressible words plus non-compressible words, with the non-compressible words containing the repeating data of the sequence.

Figures 4a-4e illustrate an example for a data sequence or pattern that consists of the datum "0" repeated seven times followed by the datum "53" repeated six times, with the sequence being repeated twenty-one times. Figure 4a is the first word of the encoded pattern, which indicates the data is compressible (first bit = 0), the next five counter bits have a value of "4" indicating four subsequent words together with the word of Figure 4a encode the sequence, and finally the final bits of the word have a value of "21" to indicate the sequence repeats twenty-one times. The next two words of Figures 4b and 4c encode the seven repeated "0" portion of the pattern and the two words of Figures 4d and 4e encode the six repeated "53" portion of the sequence. Note the actual data of the sequence, namely "0" and "53" in this example, is contained or encoded in non-compressible words of Figures 4c and 4e.

The Abou-Samra patent is directed to run length encoding for the recurrence or repeating of symbols as well as encoding the recurrence of patterns of symbols. Figure 5 illustrates the encoding of a pattern of symbols according to the approach of Abou-Samra. Where a pattern is involved, the sentinel field is set to all zeros as indicated. A PS field encodes the length of the redundant pattern of symbols in bytes and a field S encodes the redundancy value of the pattern (*i.e.*, how many times does the pattern repeat). A data field 360 contains the redundant pattern of symbols being encoded and this field will be the value in the PS field bytes long. The PS field indicates the length of the actual redundant pattern of symbols according to the approach of Abou-Samra and does not relate to other groups of fields, where each group of fields includes compression/non-compression information plus pattern information as just discussed.

The format for compressible words in embodiments of the present invention allows recursion to be implemented in these embodiments. This is a fundamental difference between the approach of Abou-Samra and embodiments of the present

invention. More specifically, such recursion allows sequences of sequences to be encoded through multiple words since fields in compressible words may refer to other words which, in turn, contain fields referring to still further words. This recursive structure of embodiments of the present invention is a very useful feature for the testing memory devices because such tests contain very regular patterns and failures are either rare or occur as repetitive patterns.

This is contrary to the approach of Abou-Samra where an entire pattern must be encoded in the word of Figure 5 and no subsequent words are utilized. For example, consider the example shown in Figs. 7a-7d of the present application. In this example, a data sequence that is repeated 21 times is formed by the datum "00", which is repeated 7 times, followed by the datum "53" which is repeated 6 times (*i.e.*, 21 times the sequence 00, 00, 00, 00, 00, 00, 00, 53, 53, 53, 53, 53, 53 repeats, with each datum in this example being in hexadecimal format). With the approach of the embodiment of Figures 7a-7d, this data sequence is encoded and thereby compressed to only four 16-bit words. In contrast, the approach of Abou-Samra would require many more words 16-bit words. This is seen to be true even if the Sentinel, PS, and S fields are ignored in the word of Figure 5, with the data field 360 alone including the 13 hexadecimal words or 26 eight-bit bytes shown above. Each of these 13 hexadecimal words corresponds to 16-bit word and thus the difference between the embodiment of Figure 7 and Abou-Samra is four 16-bit words in the embodiment of Figure 7 versus thirteen 16-bit words with Abou-Samra (ignoring even more words required for Sentinel, PS, and S fields).

Amended claim 1 recites, in part, a method for compressing high repetitivity data including recognizing a sequence of repetitive data and encoding the sequence of repetitive data. The encoding of the sequence of repetitive data is obtained using in combination one or more words with a format for non-compressible data and one or more words with a format for compressible data. A word with a format for compressible data is made up of a set of bits, in which a specific bit is set at a second logic value different from the first logic value for non-compressible data. A first set of bits indicates the total number of subsequent words, which, together with the word, encode the sequence of repetitive data. A second set of bits indicates the number of times that the words indicated by the first set of bits are repeated.

Abou-Samra neither discloses nor suggests a word with a format for compressible data having a first set of bits that indicates the total number of subsequent words, which, together with the word, encode the sequence of repetitive data. With the approach of Abou-Samra there is only a single "word" as that term is used in the present application, with this single word encoding a sequence or pattern. The PS field of Abou-Samra encodes the length of the redundant pattern in bytes and does not define the number of subsequent words (which may include other words with a format for compressible data and words with a format for non-compressible data). It is true that with the approach of Abou-Samra, groups of words could encode a pattern, but such words word are independent of one another and none of the words includes a first set of bits that indicates a total number of subsequent words. The group of bits in Figure 5 of About-Samra corresponds to a word. No field in this word is a first set of bits indicating the total number of subsequent words that together with this word encode the sequence of repetitive data.

This difference between Abou-Samra and the format of compressible words recited in claim 1 is a fundamental difference as discussed with reference to the embodiment of the present invention described above. Accordingly, the combination of elements recited in claim 1 is allowable.

Independent claim 15 recites a method for compressing repetitive data that includes, in part, recognizing a sequence of repetitive data and encoding the recognized sequence of repetitive data into a combination of compressible data words and non-compressible data words. Each of the compressible data words includes a plurality of bits, with at least one bit identifying the word as a compressible data word. A first group of bits indicates a total number of subsequent words that define a repetitive sequence within the data and which together with the word encode that sequence of repetitive data. A second group of bits indicates the number of times that the repetitive sequence defined by the first group of bits is repeated.

Once again, Abou-Samra neither discloses nor suggests a compressible data word including a first group of bits indicating a total number of subsequent words that define a repetitive sequence within the data and which together with the word

encode that sequence of repetitive data. Abou-Samra does not disclose or suggest multiple words for encoding a sequence of data, but instead uses a single word with defined fields to do so, as previously discussed. For these reasons, the combination of elements recited in independent claim 15 is allowable.

Independent claim 18 is allowable for reasons similar to those discussed above with regard to claims 1 and 15. All dependent claims are allowable for at least the same reasons as the corresponding independent claim and due to the additional limitations added by each of these dependent claims.

The Examiner cited the Rajski patent merely for disclosing an electronic system including a functional device and a tester as recited in claim 18. Rajski is not discussed in more detail since the combination of Abou-Samra and Rajski does not render any of claims 18-22 obvious due to the distinctions of the Abou-Samra patent discussed above and which apply as well to the recited combinations of elements in claims 18-22.

The present patent application is in condition for allowance. Favorable consideration and a Notice of Allowance are respectfully requested. Should the Examiner have any further questions about the application, Applicant respectfully requests the Examiner to contact the undersigned attorney at (425) 455-5575 to resolve the matter. If any need for any fee in addition to that paid with this response is found, for any reason or at any point during the prosecution of this application, kindly consider this a petition therefore and charge any necessary fees to Deposit Account 07-1897.

Respectfully submitted,

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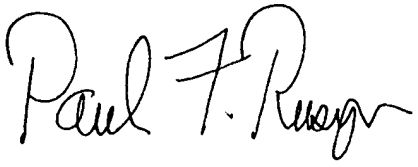

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